

# Notice of Allowability

Application No.

10/799,714

Examiner

Tuan N. Nguyen

Applicant(s)

MIHASHI ET AL.

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/05/2006.
2. ☒ The allowed claim(s) is/are 1-3,5-7 and 15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 11/24/2006.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## DETAIL ACTION

### *Response to Amendment*

1. In responding to applicant's amendment filed 09/05/2006, claims 1, 3, 4 have been amended, claims 4, 8-14 have been canceled, and claim 15 has been added.
2. The non-patent publication mentioned in the previous office action on the PTO-892 form relied by the former Examiner has been made of record, and a copy is being supplied with this office action.

## EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below, to the amended claim 1 should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview on November 24, 2006 with Mr. Jeffrey A. Wyand (Attorney for Applicant, Reg. No. 29,458).

### **Claim 1:**

1. (Currently Amended) A ridge waveguide semiconductor laser including an optical resonator and comprising:
  - an active layer;
  - a semiconductor layer on said active layer and having a ridge-shaped waveguide therein;
  - an insulating film on said semiconductor layer and having a thickness not exceeding 250 nm;

a first electrode layer in contact with said semiconductor layer through an opening in said insulating film, said first electrode layer including a titanium electrode layer, a barrier layer, and a gold electrode layer, laminated in that order; and

a second electrode layer, on said first electrode layer, having a stripe shape, and extending generally parallel to said waveguide, wherein distance from an end face of the resonator to an edge of said second electrode layer is less than 20  $\mu\text{m}$ .

### REASON FOR ALLOWANCE

#### *Allowable Subject Matter*

3. The following is an examiner's statement of reasons for allowance - Applicant's response filed on 12/15/2004 has been considered, with respect to claims 1, 3, and 5, the references of the record fail to teach or suggest a ridge waveguide semiconductor laser including an optical resonator comprising:

#### **Claim 1:**

an insulating film position on a semiconductor layer having a ridge-shape waveguide having a thickness not exceeding 250 nm, where the semiconductor layer is on an active layer, where there is *a first electrode layer in contact with said semiconductor layer through an opening in said insulating film, said first electrode layer including a titanium electrode layer, a barrier layer, and a gold electrode layer, laminated in that order; and a second electrode layer, on said first electrode layer, having a stripe shape, and extending generally parallel to said waveguide, wherein distance from an end face of the resonator to an edge of said second electrode layer is less than 20  $\mu\text{m}$ .*

#### **Claim 3:**

Where *a first electrode layer in contact with said semiconductor layer through an opening in said insulating film, said first electrode layer including a titanium electrode layer, and a gold electrode layer having a thickness of at least 700nm, laminated in that order; and a*

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*second electrode layer, on said first electrode layer, having a stripe shape, and extending generally parallel to said waveguide, wherein distance from an end face of the resonator to an edge of said second electrode layer is less than 20  $\mu\text{m}$ .*

**Claim 5:**

*Where a first electrode layer in contact with said semiconductor layer through an opening in said insulating film, said first electrode layer including a titanium electrode layer and a gold electrode layer having a thickness of at least 200nm, laminated in that order; and a second gold-plated electrode layer having thickness of at least 800nm, on said first electrode layer, having a stripe shape, and extending generally parallel to said waveguide, wherein distance from an end face of the resonator to an edge of said second electrode layer is less than 20  $\mu\text{m}$ .*

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Communication Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F.

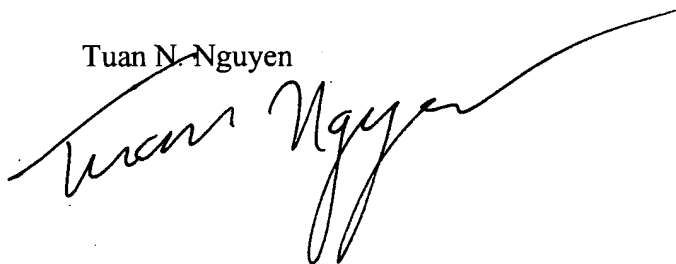
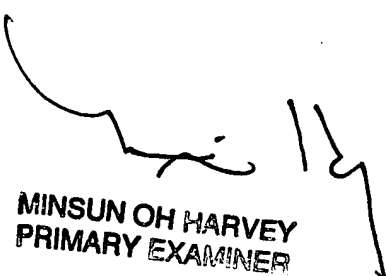
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be

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obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen

A handwritten signature in black ink, appearing to read 'Tuan N. Nguyen', with a long, sweeping horizontal line extending to the right.A handwritten signature in black ink, appearing to read 'Minsun Oh Harvey', with a long, sweeping horizontal line extending to the right.

**MINSUN OH HARVEY  
PRIMARY EXAMINER**